	CAD		≥2 Vessel CAD	1 Vessel CAD
	Sens	Spec	Sens	Sens
ETT	90 (28/31)	89 (17/19)	100 (15/15)	81 (13/16)
Bike	71 (22/31)[a]	89 (17/19)	87 (13/15)	56 (9/16)[a]

[a]$p < 0.05$ vs ETT. McNemar's test statistic

ETT vs Bike SE had higher peak HR (127 ± 20 vs 109 ± 19 bpm, p = 0.0001) and double-product (20,980 ± 5264 vs 19,499 ± 4732 mmHg-bpm, p < 0.025) and may account for its better sensitivity. *Conclusions:* This is the first study to show that the sensitivity of ETT SE is better than that of Bike SE, but specificities are comparable. ETT is the preferred Ex method for SE, particularly for detection of single vessel CAD.

9:45

773-6 Is Preoperative Risk Assessment With Dobutamine Stress Echocardiography Useful Before Nonvascular Surgery?

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Dobutamine stress echocardiography (DSE) is widely used for risk stratification before vascular surgery. Less is known about its role in evaluating pts prior to nonvascular surgery.

Methods: From January 1990 to June 1993, there were 239 pts with known or suspected coronary artery disease (CAD) (mean age 71 ± 8 yrs; 143 men) who underwent preoperative assessment with DSE prior to nonvascular surgery. All pts who underwent coronary revascularization prior to surgery were excluded from analysis. All pts were unable to exercise. Types of surgery included: orthopedic (103 pts; 43%), head and neck (51 pts; 21%), abdominal (41 pts; 17%), pelvic (30 pts; 13%), and thoracic (14 pts; 6%) procedures. Univariate and multivariate analyses were performed to determine variables associated with postoperative cardiac events (MI or cardiac death).

Results: In the group of 239 pts, 82 pts (34%) had prior coronary revascularization, 80 pts (33%) had prior MI, 184 pts (77%) had two or more risk factors for CAD, and 48 pts (20%) had a history of angina. During DSE, chest pain occurred in 34 pts (14%) and dyspnea in 23 pts (10%). DSE was abnormal in 141 pts (59%): infarction was demonstrated in 66 (28%), ischemia in 39 (16%), and both ischemia and infarction in 36 (15%). Postoperative events occurred in 17 pts (7%). By multivariate analysis, history of angina, age, type of surgery, presence of known CAD, rest ejection fraction, and other clinical and rest echo variables were not predictive of postoperative cardiac events. However, an increase in wall motion score index with DSE was significant (p = 0.0007) with an odds ratio of 7 for 0.5 unit increase in regional wall motion score index (95% CI: 2.3–21.5).

Conclusion: In this group of pts with a high prevalence of CAD who were not able to exercise prior to nonvascular surgery, clinical and echocardiographic parameters were not predictive of perioperative events. Of all the variables tested, ischemia with DSE was the only significant predictor.

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Wednesday, March 19, 1997, 8:30 a.m.–10:00 a.m.
Anaheim Convention Center, Room B2

8:30

774-1 Neonatal congenital heart surgery increases the risk of acquired atrioventricular block: Implications for early elective repair

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The surgical repair of congenital heart disease has changed dramatically over the past 10 yrs., with more repairs performed in infancy. We reviewed our experience to assess the risk of transient and permanent surgical atrioventricular block (SAVB) associated with repair in smaller patients (pts). *Methods:* 1231 pts underwent cardiopulmonary bypass from 6/91 to 7/95 of which 1100 had normal AV conduction preoperatively and survived. 711 pts were ≤ 15 kg at operation. Data analyzed: pt demographics, diagnosis, presence of AV conduction, and procedure. *Results:* Median weight was 7.5 kg and median age was 0.9 yrs. Weight (p < 0.05) and type of operation (p < 0.01) were both independent predictors of SAVB. SAVB primarily occurred in 3 operations: Isolated ventricular septal defect repair (VSD), VSD repair with other cardiac surgery (VSDC), and AV canal repair (AVC). Infants represented 52% of all surgeries but 70% of all pts with SAVB (p < 0.05). The derived logistic regression equations suggest the following weight and surgery specific risks for SAVB:

Weight (kg)	VSD	VSDC	AVC
5	8%	8%	13%
10	4%	4%	7%
15	2%	2%	4%

Conclusions: 1) Infants are disproportionately represented in the group with SAVB [52% of surgeries, 70% of SAVB] 2) The risk of SAVB proportionately increased with lower weight. These factors should be considered when referring infants for early elective repair.

8:45

774-2 Recovery of surgically induced heart block in congenital heart disease

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We performed a retrospective study on the recovery of atrioventricular conduction from surgically induced heart block [SIHB] requiring pacemaker implantation. Forty-four consecutive patients [pts] underwent pacemaker insertion for SIHB in our institutions between 1976 and 1995. At median follow-up of 5.5 yrs [range 0.1–20], 14 pts [32%] had recovered and 30 pts remained pacemaker dependent [PD] on 24-hour Holter monitoring. Of the 14 non-PD pts, 3 had I^0 heart block and 9 had bundle branch block. Follow-up for both groups [non-PD, PD] was similar [7.7 ± 6.2, 7.6 ± 6.1 yrs, p > 0.5] as were mean age [3.8 ± 5.1, 3.4 ± 4.6 yrs, p > 0.5] and weight [13.7 ± 17.1, 15.7 ± 18.4 kg, p > 0.5] at time of surgical repair. Types of heart defect and repair were similar for both groups [p > 0.2]. There was no significant difference between the groups in the number of pts with implantation at >10 postoperative days [non-PD 6/14, PD 20/30, p > 0.2] nor >14 postoperative days [non-PD 4/14, PD 15/30, p > 0.3] nor in the type of SIHB, high-grade or complete heart block [p > 0.3]. Pacemaker implantation at <10 days was related to clinical considerations [eg. reliability of temporary pacing] and was not significantly different between the groups [non-PD 8/14, PD 10/30, p > 0.06].

The finding of 32% recovery from SIHB at median follow-up of 5.5 years, in our series, is unexpectedly high. Retrospective analysis did not identify clinical indicators for recovery or pacemaker dependence. The recommendation for pacemaker implantation when high-grade or complete heart block persists for 10–14 postoperative days is mainly empiric. A prospective study is warranted to identify predictors for postoperative recovery and to evaluate electrophysiological tests to establish guidelines for long-term pacemaker dependency in these patients.

9:00

774-3 Low temperature and low energy radiofrequency modification of atrioventricular node slow pathway in pediatric patients

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Atrioventricular nodal reentry tachycardia (AVNRT), the most common form of supraventricular tachycardia (SVT) in adults, represents approximately 15% of SVT in children. Radiofrequency (RF) ablation is currently the treatment of choice for many patients with AVNRT. Previous reports suggest a temperature of 60 to 70ºC and a power of 25 to 50 watts are required for modification of the slow pathway in AVNRT. We report our experience in 17 consecutive patients using lower temperatures and power in the modification of the slow pathway in AVNRT. *Procedure:* Seventeen patients age 15.5 ± 2.7 years (range 10 to 20) underwent successful RF modification of their AVNRT. The slow pathway was localized by anatomical mapping to the base of the triangle of Koch. A mean of 5.6 ± 4.8 (range 1 to 19) applications for 65.6 ± 18.1 secs (range 30 to 98) were delivered using an EPT Inc. System. The mean power delivered was 18.2 ± 4.9 watts (range 12 to 29) with a maximum of 25.2 ± 7.8 watts (range 15 to 45). The impedance during these lesions was 93.0 ± 6.4 ohms. Recorded temperatures were 46.1 ± 3.4ºC (mean) (range 42 to 54) and 53.8 ± 6.4ºC (maximum) (range 45 to 67). The temperature at which the rhythm changed (to junctional tachycardia) was 43.5 ± 2.5 (ranged 40 to 50). At the completion of the procedure there was no inducible AVNRT. Patients have been followed for 10.5 ± 5.9 months (range 1.6 to 19.5) without recurrence of SVT or evidence of abnormal atrioventricular conduction.

Conclusion: Slow pathway modification in AVNRT can be performed using lower energy and temperature, which should decrease the risk of coagulum. This should lead to smaller lesions with less damage to normal tissue and decrease the risk of atrioventricular block.